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Zaire's National Route: A Northern Option?

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A Research Paper

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Zaire's National Route: A Northern Option?

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A Research Paper

This paper was prepared by

Office of Global Issues.

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It was coordinated with the
Directorate of Operations.

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Comments and queries are welcome and may be
directed to the Chief, Geographic Issues Division,
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**Zaire's National Route:
A Northern Option?**

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Summary

*Information available
as of 27 February 1987
was used in this report.*

Zaire's primary river and rail system, the Voie Nationale (VN), barely meets the country's transport needs, and investments of roughly \$100 million are required to maintain the system's capacity at current levels over the next five years. If South Africa were to disrupt transport patterns by imposing countersanctions on neighboring Frontline States, the VN would require even greater investments in infrastructure and equipment—as well as marked improvements in management capabilities—to handle the Zairian traffic that now moves through South Africa.

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Zaire depends on the South African transportation network to export 40 percent of its mineral resources and to import supplies for its key mineral industries in the Shaba Region. A cutoff of the southern route would result in an annual loss of \$200-250 million in copper export revenues alone and further set back efforts to revive Zaire's economy. Alternate routes through adjacent states do not provide realistic options in the short term for Zaire because of security threats, inefficiencies, and Zaire's often strained relations with its neighbors. Thus, investment in the maintenance and expansion of the VN, despite its current limitations, provides an attractive solution for Zaire to this possible transport dilemma.

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Continued donor financing will be necessary to maintain the existing capacity of the VN. The VN suffers from management problems, outdated and poorly maintained equipment and infrastructure, and a shortage of skilled and disciplined manpower. Zaire has made some progress in improving portions of the system over the past five years, but rehabilitation of the rail lines, continued expansion at the ports of Ilebo and Kinshasa, and management improvements are critical to any future increase in the system's capacity.

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Even with major investments, it is unlikely, in our judgment, that the VN would be able, in the short term, to serve the needs of the landlocked Frontline States if countersanctions were imposed by South Africa. Expansion of VN capacity would, however, relieve pressures on the southern transport system and ensure the continued transit of the majority of Zaire's mineral exports. Improvements to the VN would benefit the region if the Benguela Railroad were rehabilitated; the Benguela's only link to the South African transport network is via Zaire's southern rail line.

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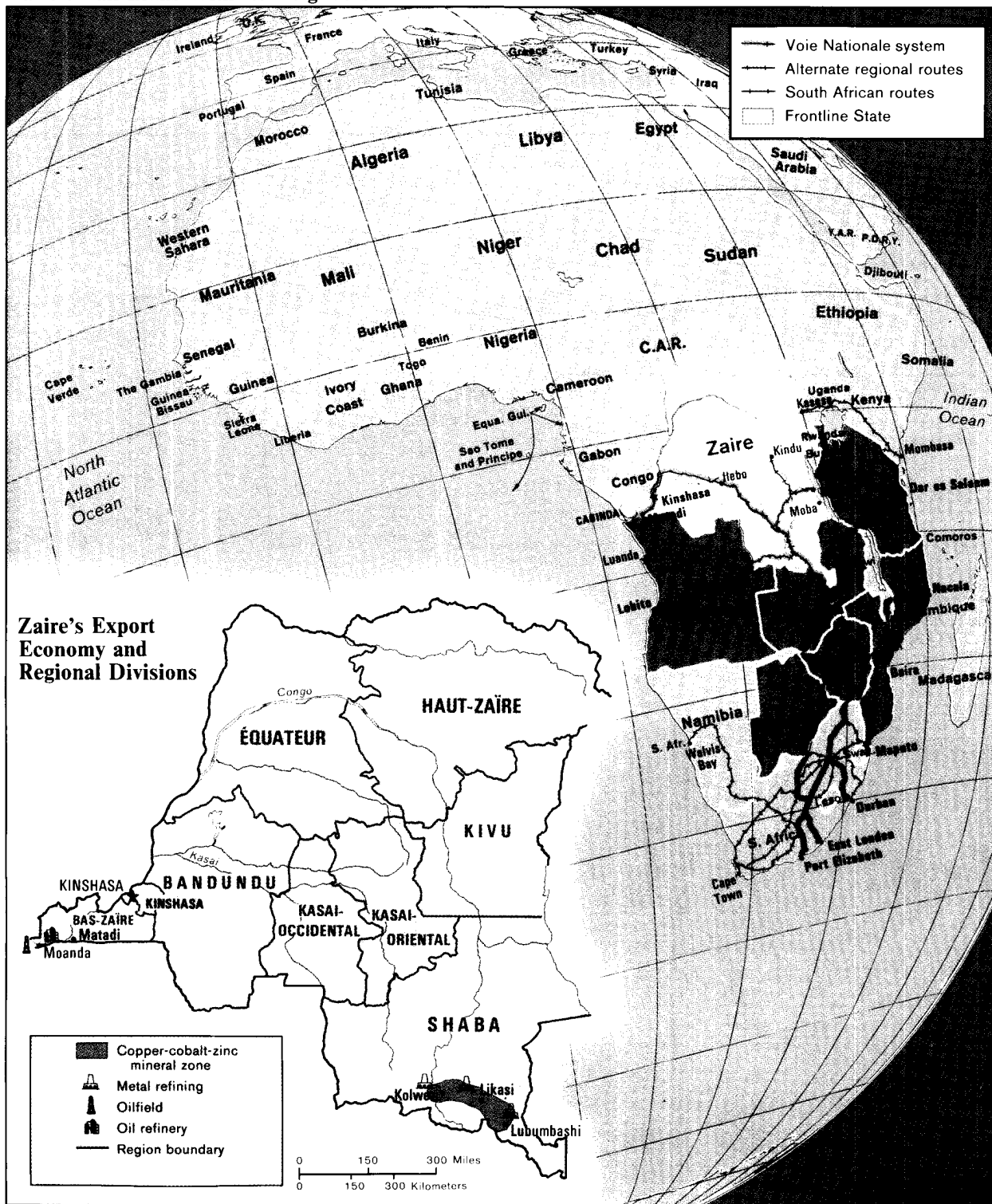
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Figure 1

Zaire's Rail Links With Its Neighbors



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**Zaire's National Route:
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The Transportation Challenge

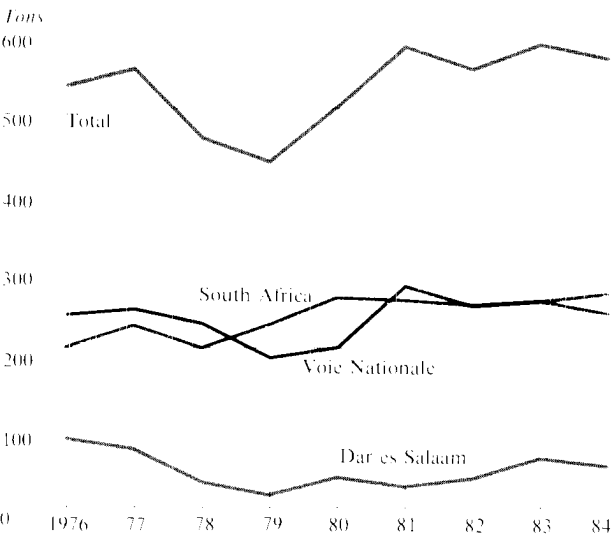
Zaire depends on the railway network of neighboring countries to export a significant portion of its mineral resources and to import much of mineral-rich Shaba Region's industrial and consumer needs. Much of this flow moves through South Africa. In the event that South African countersanctions or associated developments were to disrupt existing transport patterns, Zairian exports would have to compete with those of other southern African states for use of the region's limited transport facilities or be channeled entirely onto the Voie Nationale (VN), Zaire's only major transport artery. In 1982 and 1983 about 45 percent of the country's mineral exports moved along the VN to Zaire's main seaport at Matadi, an equal amount traveled the Shaba portion of the system to link to the "southern route" for export through South Africa,¹ and the remainder exited through the Tanzanian port of Dar es Salaam (figure 2).

The VN does not have the capacity to absorb more than a small percentage of the potential additional traffic.

Zaire's recent efforts to join the Frontline States (FLS)² and the Southern African Development Co-ordination Conference (SADCC)³ reflect, in part, its concern over how possible South African countersanc-

¹ The FLS countries are Angola, Botswana, Mozambique, Tanzania, Zimbabwe, and Zambia.
² SADCC is an alliance of nine black states established in 1980 to maximize regional cooperation and to reduce these countries' dependence on South Africa. The member states are Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia, and Zimbabwe.

**Figure 2
Zaire Mineral Exports by Route,
1976-84**

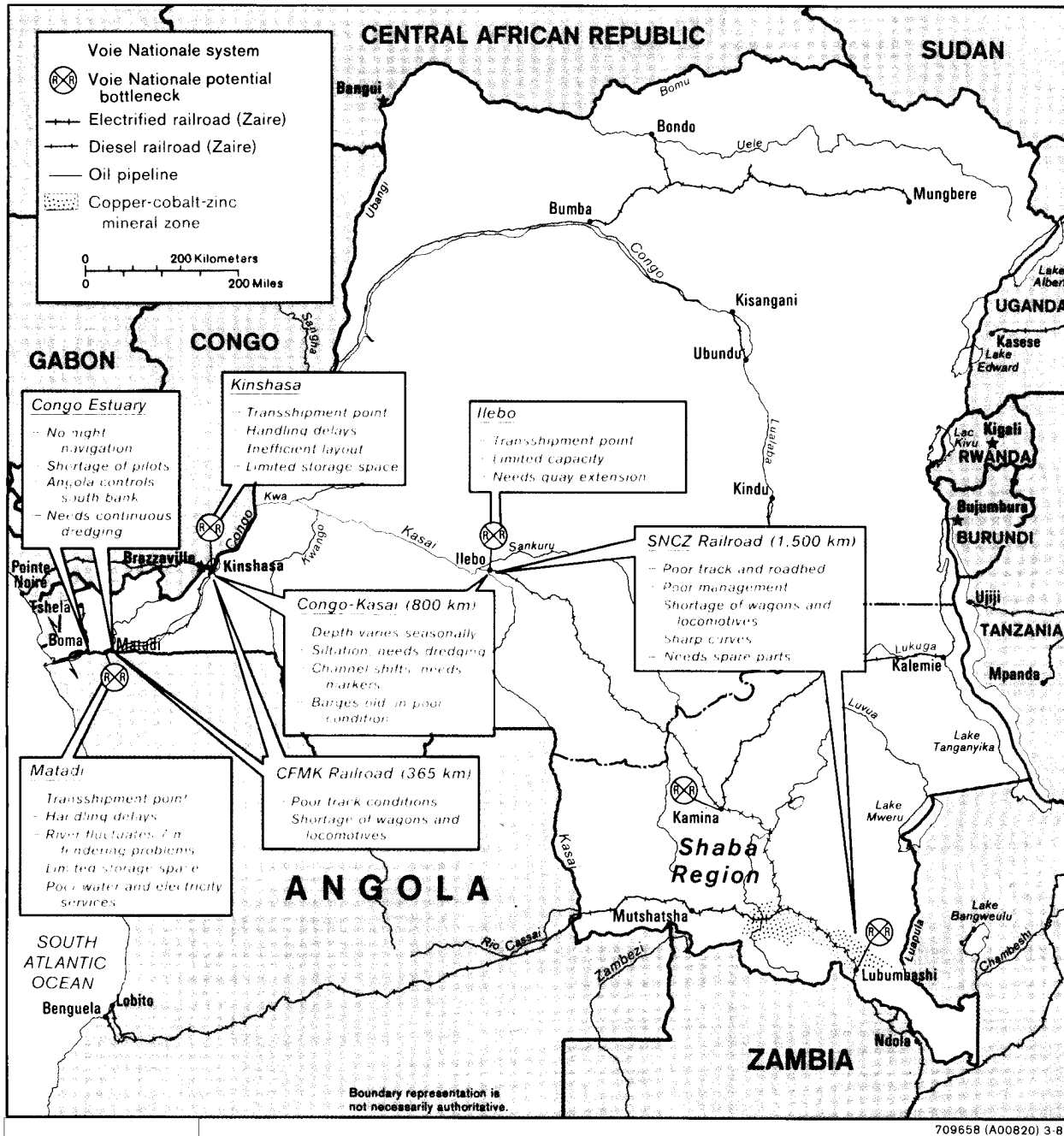


tions might affect its ability to export minerals and import goods necessary to maintain its domestic mineral industry. Minerals now provide an estimated 65 percent of Zaire's foreign exchange earnings. Zaire's attempts to revive its economy would be badly hurt by the closure of the southern route. The imposition of countersanctions would not immediately affect the supply of Zairian cobalt to the United States and its allies; stockpiles exist in European warehouses and the mineral can be flown to Matadi for export. A more permanent disruption, however, could stimulate the development of cobalt production in other countries and result in the loss of Zaire's cobalt market in the West. Although cobalt could be air freighted, Zaire

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Figure 3
Zaire's Voie Nationale



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would be hard pressed to find alternative routes that could absorb the other mineral exports that now move through South Africa. []

For the foreseeable future, Zaire's prospects for using alternative routes through adjacent states are poor. Large-scale investments and improvements in efficiency would be required to expand the capacity of the regional transport net to absorb the traffic that now exits through South Africa. If this flow of goods could not move through the South African-controlled southern route, it would need to be apportioned among the region's six alternate transport corridors with access to the sea (figure 12, end of report). Insurgencies have closed two major routes to regional use—the Benguela Railroad to Lobito, Angola, and the Limpopo Railroad to Maputo, Mozambique. Two additional Mozambican rail routes, the Beira and the Nacala, are subject to sabotage and insurgent attacks. The two Tanzanian railroads, the Tanzania Railway Corporation and the Tazara, are ultimately constrained by the heavily congested port of Dar es Salaam. []

Thus, improving the VN is an attractive option for Zaire. This extensive system, with its multiple rail and river interchanges, management problems, and maintenance difficulties, can now handle only about 60 to 70 percent of Zaire's import and export traffic. Costs are high, transit times are slow, and delays are frequent. Substantial international assistance has helped Zaire make some progress in improving portions of the system over the past five years, but the government still lacks the funding to significantly increase the route's capacity. []

The country's 145,000-kilometer road network is not a viable alternative to the VN; it is in poor condition and consists mainly of narrow, unengineered roads with poor drainage and deteriorated surfaces—less than 4 percent of the network is paved or graveled. Although parastatal agencies (state-owned companies) still dominate the transport sector, the number of private operators in road, river, and air transport is increasing. Road transport, which has traditionally been handled by the private sector, is very competitive around Kinshasa and vies with rail traffic along the

Kinshasa-Matadi corridor. Private operators now account for 33 percent of all river traffic. []

Voie Nationale

The System

The Voie Nationale is a 2,665-kilometer rail and river network that serves as Zaire's main transport corridor linking the country's Shaba Region to its main seaport at Matadi (figure 3). About 240,000 tons of mineral traffic move annually by rail from Shaba to the river port of Ilebo, by barge from Ilebo to Kinshasa, and by rail from Kinshasa to Matadi. In addition, the route annually handles about 75,000 to 100,000 tons of general cargo and about 120,000 to 140,000 tons of petroleum as imports, together with unspecified amounts of raw materials and agricultural products as exports. The VN is also an important artery for internal commerce. It serves as a funnel into which feeder routes throughout the country are channeled, and as a less expensive alternative to the country's poor road system. Large quantities of maize move from northern Shaba and Kasai Regions to southern Shaba, and such goods as palm oil, forestry products, manioc, and rice move downstream on the VN system. Zaire's rural economy and nonmineral exports depend on the maintenance and improvement of the VN. []

Two major parastatals manage and maintain the system: the Office National des Transports (ONATRA) and the Societe Nationale des Chemins de Fer Zairois (SNCZ). ONATRA manages transport services on the Congo and its tributaries, the railway between Matadi and Kinshasa, and most inland ports. The SNCZ operates the rail services in the southern and eastern portions of the country and manages several ports, including Kalemie and Ilebo. Two agencies that operate navigational aids on the country's waterways, Regie des Voies Fluviales (RVF) and Regie des Voies Maritimes (RVM), also have key roles in the VN. []

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Figure 4. Derailment south of Ilebo, Zaire (note steep drop-off). Derailments were averaging 10 per month along the heavily traveled and badly worn portion of track between Tenke and Ilebo in 1983.



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Shortfalls

The VN's basic transport infrastructure barely meets Zaire's current transport demands. Zaire has lacked adequate funding and management capabilities to improve the system. Money that has been made available has flowed through World Bank projects, and, until recently, investment inefficiencies have been high because of management problems, inappropriate policies, corruption, and theft. The bank undertook several projects affecting the VN in the 1970s but found them constrained by lack of skilled management and inadequate working capital. Consequently, its projects have focused on "emergency" repairs and maintenance rather than on replacement of wornout equipment. The situation has been especially dismal at the SNCZ, mainly because of poor management and the loss of a \$42 million Arab finance package for the SNCZ that was withdrawn when Zaire recognized Israel in 1982.

Shortages of spare parts and insufficient investment and maintenance over many years have resulted in an accumulation of wornout, unreliable, and outmoded equipment and the deterioration of maintenance and repair facilities, all of which translate into loss of

capacity, poor service, and high transport costs (figure 4). Inappropriate decisions concerning tariffs and budget allocations have exacerbated these problems, according to World Bank studies.

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Transit times on the VN are unsatisfactorily high even by Third World standards. Recent US Embassy reports indicate that the surface traveltime from Shaba to Matadi is approximately 65 days, a 14-day increase over 1983 transit times (figure 5). Surface transport on the route is slowed by handling delays at the ports of Kinshasa and Ilebo and poor operating speeds on the SNCZ railroad. Transit times for containerized imports have been better, but they too are unusually slow. Although ongoing improvements at Kinshasa should increase traffic flows, little progress has been made in the past few years to improve facilities at Ilebo.

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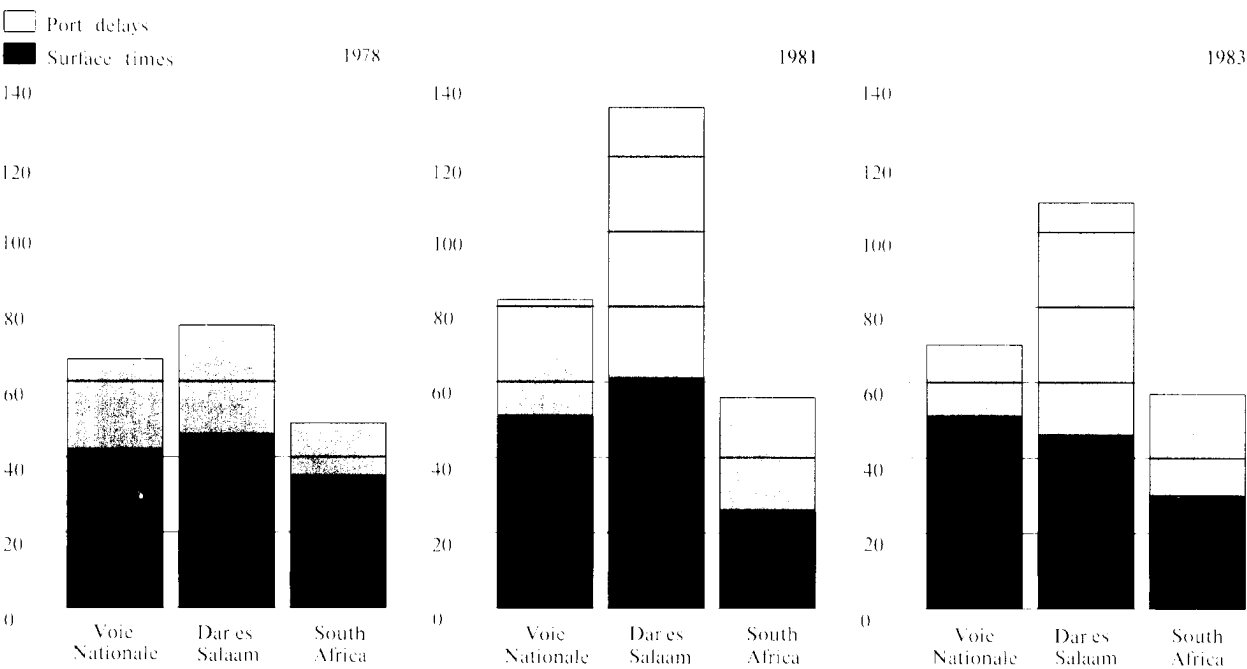
Lengthy transit times combine with long distances, low traffic densities, high fuel costs, old equipment, poor security, and poor productivity to make both unit and total costs high.

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Figure 5
Zaire's Mineral Exports:
Transit Times, 1978, 1981, and 1983



[redacted]

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[redacted]
[redacted] VN costs are about 8 and 9 percent higher per ton, respectively, than costs on the eastern and southern routes through Tanzania and South Africa. The VN remains the preferred route, however, because its use conserves foreign exchange.
[redacted]

transport sector—in which the VN plays the central role. Recent major rehabilitation projects should improve VN performance somewhat (figure 6). Three bank-assisted projects, totaling \$231 million, are scheduled for completion between early 1987 and late 1988. [redacted]

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Continuing Needs

Both the Government of Zaire and outside donors, such as the World Bank, recognize the importance of the VN to Zaire's economic development and are now making VN maintenance and development a policy priority. The current Zairian public investment program allocates a real share of about 30 percent to the

[redacted] much remains to be done to improve the VN. The SNCZ and the Matadi-Kinshasa railroads ways continue to suffer from poor track and roadbed conditions, locomotive and wagon shortages, lack of spare parts, deteriorating repair facilities, and a shortage of adequately trained person-

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nel (figures 7, 8, 9, and 10). Faulty communications impede coordination of traffic along heavily traveled portions of the SNCZ. The two railroad systems will remain major bottlenecks to improved capacity for the near future. [redacted]

Improvements in transshipment facilities at Ilebo are necessary to expand its limited capacity and improve its freight handling capabilities. Further expansion of the container handling capacity at Ilebo would require completion of a quay, an extension of the rail lines, and additional cranes and storage areas for containerized cargo. In addition, an inland container terminal should be built at Lubumbashi, and Terminale a Conteneurs de Kinshasa should be improved to remove inefficiencies in movement of container vessels. [redacted]

In our judgment, Zaire will remain dependent on outside support to maintain and improve the VN. The country's need for outside assistance would increase even more if the southern route were closed and the VN had to carry the additional 250,000 tons of mineral exports and the manufactured goods and food imports that now transit the South African route. If attempts to increase the amount of mineral exports transiting the VN result in the displacement of existing traffic, the economy throughout Zaire would suffer. The difficulty of transporting goods is reportedly already hampering development and expansion in the agricultural sector. The World Bank—which has provided the framework for establishing investment priorities for outside financing—is likely to continue to lead efforts aimed at developing the transport sector. [redacted]

Investment Options

Until now, decisions on benefits and costs of investments in the VN have not considered possible denial to Zaire of access to southern routes but have assumed continued access to the cost-efficient South African transport system. [redacted]

On the basis of our analysis [redacted]

we judge that:

- Investments of roughly \$100 million over the next five years will probably be necessary to maintain the system's capacity at current levels. Some portions of the system might even realize modest capacity increases. Such an investment level would provide for continued technical assistance and training and for the maintenance, replacement, and rehabilitation of existing river, rail, and port equipment. 25X1
- Investments in the range of \$150-400 million would be required to expand the system's capacity sufficiently to carry all of Zaire's mineral exports and much of its imports that now arrive via the southern route. Such a major capacity expansion would require heavy investments in railway and port infrastructure and equipment, as well as funding for the maintenance and replacement of river transport equipment and continued technical assistance and training. Implementation could take up to 10 years. 25X1
- Investments in excess of roughly \$400 million would be needed to remove the existing transshipment bottlenecks and allow the VN to handle goods from neighboring countries. Some of the projects that would receive consideration under such a large funding program are the electrification of the rail lines from Kamina to Ilebo and from Kinshasa to Matadi (the latter at a cost of approximately \$70 million), and the double tracking of key segments of the SNCZ (figure 11). Construction of a rail link between Ilebo and Kinshasa—an enormously expensive project estimated at \$2 billion—would eliminate the need to transship goods at these two river ports. Changes of this magnitude would require from 10 to 25 years to implement. [redacted] 25X1

Investment in improving and expanding the VN—which for all of its shortcomings is at least secure—could upgrade the capacity of the system enough to handle the majority of Zaire's mineral production and relieve the rest of the South African network of 25X1

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Figure 6
Rehabilitating Zaire's Transport System

Development Projects

World Bank projects are focused, in part, on improving organization and management and providing technical assistance because improvements in maintenance, rehabilitation, and modernization will result in increased capacity only if accompanied by management reforms. To date, the most substantial improvements have taken place at the Office Nationale des Transports (ONATRA), where a planning unit has been created, a modern management information system established, and the financial department strengthened. Management development and reorganization have also taken place at Regie des Voies Fluviales and Regie des Voies Maritimes. The Societe Nationale des Chemins de Fer Zairois (SNCZ), Zaire's largest transport organization with 23,000 employees, seems to have the worst management problems. Although Zaire has taken steps to restructure the organization, enhance the quality and morale of its personnel, and improve its management control and auditing, progress has been unsatisfactory.

Zaire has also recently made considerable investments to improve ports and river transport and to facilitate freight transfers between transport modes. Container terminals and improved cargo handling facilities have been built in Matadi (photo), Kinshasa, and Ilebo; SNCZ and ONATRA have purchased some flat wagons adapted to container traffic, but more barges and wagons are needed. The result has been improved throughput capacity and reduced delay times at these ports.

A major rehabilitation project funded at \$90 million for the ports of Matadi and Kinshasa is scheduled for completion in 1987. A new concrete cargo quay with movable cargo cranes—probably for containers—is in the midstages of construction at the port of Kinshasa. Several storage sheds and support buildings have been removed from the dock, and rail lines are being moved and expanded. Scheduled improvements to the SNCZ railroad, under the Second Railway Project, include track maintenance and renewal, a telecommunications upgrade, and rehabilitation and purchases of rolling stock.

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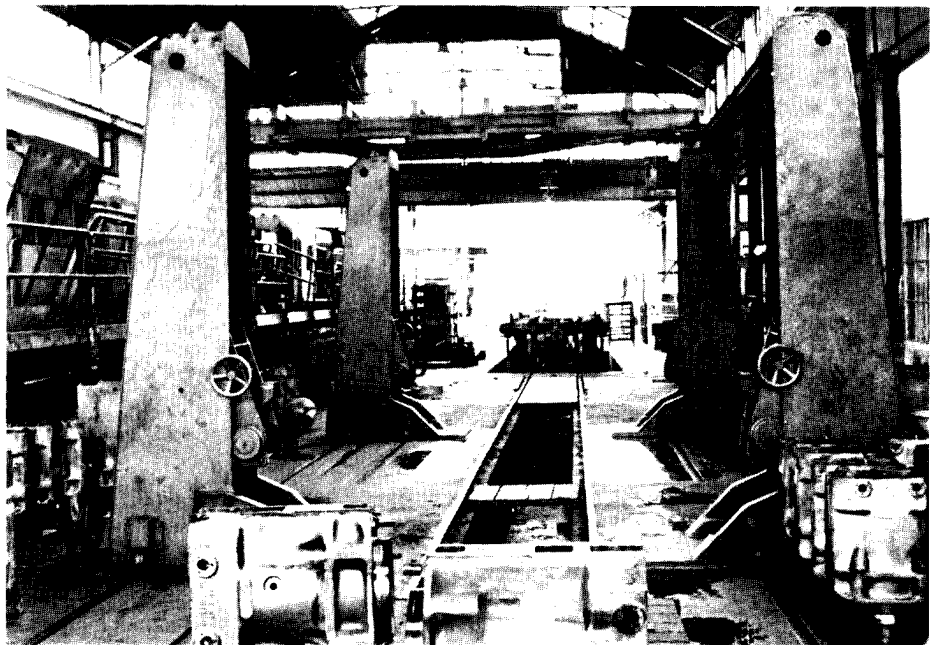
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Figure 7. Railroad track, Lumbumbashi, Zaire. Tracks and roadbeds along both the SNCZ and the CFMK railroads are generally old and in poor condition. Speed reductions often result. Only 70 kilometers of track were rebuilt during the period 1973-83.



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Figure 8. Repair workshop, Kananga, Zaire. Although workshops are in fair condition, wagon workshops need additional equipment. Shortages of spare parts seriously impair capabilities. The SNCZ has five major workshops for maintaining and repairing locomotives and wagons and 20 depots for service and minor repairs.



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Figure 9. SNCZ locomotive, Kamina, Zaire. Both the SNCZ and the CMFK are in need of additional motive power. The number and availability of locomotives have decreased over the past decade. Average availability of engines was under 50 percent on the main diesel line in 1982.



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Figure 10. Rolling stock, Kamina switching yards, Kamina, Zaire. Almost 20 percent of SNCZ wagons are more than 50 years old. Reliability of wagons is poor, and the system depends a great deal on the use of rented South African Railroad wagons.

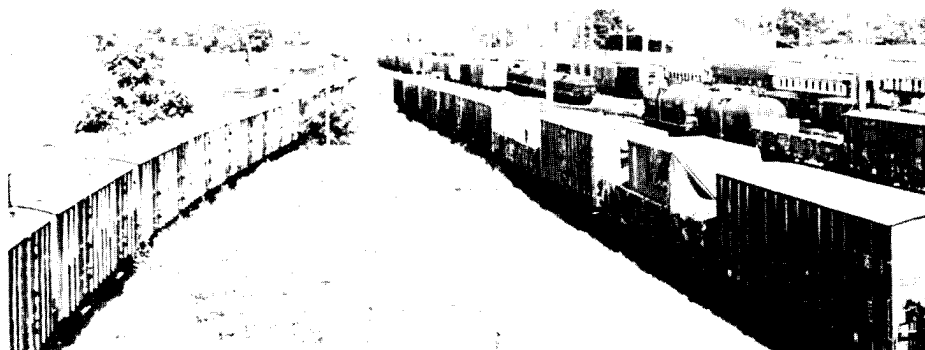


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Figure 11. Kamina railyards, Kamina, Zaire. Switching yards at Kamina are the major internal transshipment point on the SNCZ. Kamina is located at the terminus of the electrified line from Shaba and at the junction of the line to the lake port of Kalemie. []



pressures emanating from Zaire. Improving the system's capacity would have the added benefit of conserving foreign exchange that is now expended on the use of the southern route. Investment in Zaire's SNCZ railroad—which links the Benguela Railroad to Zambia—would benefit regional use of the Angola route if services on that line were restored. []

The Viability of Regional Alternatives

Zaire's only current regional alternatives to South African transport routes are those through Mozambique and Tanzania. In the event that South Africa should cut off or even slow access to its ports, we believe these alternative routes would quickly become overloaded.⁴ Even if excess capacity were developed, Zairian access to the routes would not be assured. Zaire has a history of strained relations with its neighbors that has not been eliminated by its recent efforts to join the FLS and the SADCC; its pro-Western stance and its support for the National

[] the current capacities (carrying capabilities) of most routes in this region are at best only slightly larger than current freight flows, and that total excess capacity in the system is far less than what would be required to carry the goods that move through South Africa []

Union for the Total Independence of Angola (UN-ITA) remain major points of contention. At the minimum, if countersanctions were imposed by South Africa, we believe that Tanzania and Zambia would assure that their national needs and those of historic FLS allies were met before those of Zaire were considered. []

Current efforts by SADCC countries to upgrade their transport routes are not likely to affect significantly Pretoria's stranglehold in the near term. The southern African countries are now focusing their development efforts on the 314-kilometer Beira corridor through Mozambique—which is currently underused because of insurgent attacks, mismanagement, and deterioration. The rail portion of the route currently handles less than 200,000 tons of non-Mozambican trade annually. [] a 10-year improvement program—costing as much as \$600 million—would not result in sufficient expansion of capacity at the Port of Beira to accommodate the 5.5-7 million tons of traffic that might be diverted from South African routes. []

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Tanzanian routes are the only major functioning alternatives to the Beira corridor but, according to US Embassy reporting, would offer a very limited solution to the shutdown of South African transport routes. The Tazara pipeline and railroad, the Tanzam highway, and the Tanzania Railway Corporation line all connect to the main port at Dar es Salaam, a principal bottleneck to system expansion. Capacity of the two rail lines is estimated at 3.5 million tons annually; the port is currently operating close to its estimated capacity of 2.1 million tons, according to Embassy reporting. To date, other than a major rehabilitation project at the port, Tanzania has attracted little donor support for the improvement of its transport sector because of the country's historically poor management of its assistance funding and transport systems. []

[] an increased interest in reopening the once-major westward route—the Benguela Railroad through Angola—now closed to regional traffic because of the continuing UNITA insurgency against the government in Luanda. []

The Benguela has been closed to regional traffic for most of the past decade. Before Angolan independence, the railroad carried 20 to 30 percent of Zaire's total mineral exports, according to Embassy reporting. The Benguela also served as an important outlet for Zambia, and in 1973 transit traffic constituted more than 60 percent of the 2.5 million tons of total traffic. The rail line has subsequently deteriorated, and UNITA reportedly estimates that an investment of \$300 million would be required to get the railroad running again. If the route is reopened, only part of its

capacity would be available to Zaire. Nevertheless, Zairian manganese production, which was stopped with closure of the Benguela, could be resumed []

[] and Zaire would receive additional benefits from the tariffs earned on Zambian transit traffic. []

Implications

Failure to maintain and expand the VN to handle a greater percentage of Zaire's mineral exports has potentially significant implications for the economic and political stability of Zaire, and hence the balance of power in the region. Unless efforts are made to continue the rehabilitation of the VN, Zaire faces the prospect of becoming increasingly dependent on transport networks in neighboring states and more vulnerable to pressures from these states for a change in the country's pro-Western policy. Massive new investment is needed to upgrade the system's equipment and managerial capabilities. []

Zaire's heavy dependence on routes that run through South Africa via Botswana, Zimbabwe, Zambia, and through Tanzania and Mozambique make Zaire hostage to the actions of a number of players whose policies are often at odds with those of Zaire. Zaire's President Mobutu is among the more moderate African leaders and has generally supported US objectives in the region. This support has led to Zaire's growing isolation and increased security problems. Zaire is under pressure from Frontline States, such as Zambia and Zimbabwe, for its support for UNITA. Relations with Tanzania are also strained []

[] The possibility that neighboring countries will use Zaire's access to regional routes as leverage to change policy could, especially under a changed leadership scenario, cost the United States an important moderating influence in the southern African region. []

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If Zaire were denied access to alternate southern African transport routes, the country's already severe economic problems would be seriously compounded. The loss of an estimated \$500 million annually in foreign exchange revenues would severely disrupt the current economic recovery program, which is in its fourth year. Moreover, a prolonged interruption in the flow of supplies into the sensitive Shaba Region could reduce long-term production capabilities of the mineral industry and increase the potential for political tensions. The rural economy in southern Zaire would also be severely dislocated if Zaire disrupted existing traffic on the VN in an attempt to increase mineral exports.

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Figure 12
Freight Flows for Principal Rail Lines and Connecting Ports in Southern Africa (excluding South Africa and Namibia)



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